

LR 314  
Revenue Sources for Water Management in Nebraska  
Group #3: Current Uses and Associated Costs  
Report

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## **Summary**

### **LR314 Group #3: Current Uses and Associated Costs**

Nebraska's water resources are used for many reasons generally at minimal cost. In particular, the Committee requested information on surface water users, groundwater users, agriculture, commercial/industry, municipal, public power, recreation, conservation, rural and urban users.

One common problem we ran into in gathering data was overlapping, double counting uses. Water's transitory nature makes it hard to compartmentalize each drop into a specific use, justifying an integral approach to the costs of the different uses of water.

Water needs across the state differ based on precipitation patterns, from east to west across Nebraska the average annual rainfall varies from 36" to under 16". Uses also vary between groundwater users and surface water users. The USGS calculates freshwater use by county, and estimates 91% of Douglas County's water comes from surface water, while in Colfax County only 6% comes from surface water with the remaining 94% coming from groundwater.

#### **Use**

Irrigation and power use the most water in the state, over 8 billion gallons/day for irrigation agriculture and just under 4 billion gallons/day for power generation. 111 of Nebraska's municipalities use over 8 billion gallons of water per year. Due to recent attempts to protect endangered species in Nebraska, the state of Nebraska is participating in a 3-state program with the federal government to provide an additional 130,000 – 150,000 acre feet of flows each year in critical reaches of the Platte River by 2019, and offset new depletions to target flows begun since 1997. Recreation is usually a non-consumptive user, but costs of reservoir construction and maintenance and the issues with invasive species such as zebra mussels and Asian carp add to the cost.

#### **Cost**

##### **Integrated management**

Eighteen of the twenty-three NRDs have either developed an integrated management plan or have a limited growth plan (LB483) developed or under development. Four NRDs are developing a voluntary IMP (LB764) with five others considering action. Statewide, all Natural Resources Districts have spent over \$41.5 million developing and implementing integrated management plans, which does not include all costs related to water use reduction programs. In 2010 the Department of Natural Resources spent \$5,283,656 on integrated water management.

Activities of the NRDs:

- Eighteen of the 23 NRDs have either developed an IMP or have a limited growth plan (LB 483) developed or under development.
- There are 5 NRDs that have Fully & Over Appropriated IMPs.
- The three Republican Basin NRDs are fully appropriated for the entire district and are on their 3<sup>rd</sup> IMP revision.
- Two NRDs have a portion of their district declared fully appropriated and have developed IMPs.
- Eight NRDs have developed limited growth plans under LB 483 passed in 2009.

- Three NRDS are working on limited growth plans under LB 483 since the Nebraska Supreme Court ruled in 2011 that the Niobrara River is not fully appropriated.
- Four NRDs are currently developing a voluntary IMP authorized under LB 764 passed in 2010.
- Five NRDs have discussed or are considering voluntary IMPs authorized under LB 764.

The districts have spent over \$41.5 million dollars to develop, adopt and implement IMPs or limited growth programs under LB 483. This does not include all costs for all the districts involved as some of the districts did not include all costs related to water use reduction programs. Also, it does not include all cost to develop a voluntary IMP.

**LB 483 NOTE:** The limited growth programs are authorized under LB 483 passed in 2009. The bill changed the planning process for NRDs when a determination is made that the district was preliminarily determined to be fully appropriated, but later determined not be fully appropriated. The districts developed rules and regulations to allow limited growth that would not reach a point to cause a fully appropriated determination. Also, DNR cannot grant more than 834 acres of new surface water appropriations for irrigation and cannot issue a new appropriation that would result in a fully appropriated status.

**Fully and Over-appropriated IMPs- Five Districts**

- Central Platte
- South Platte
- North Platte
- Tri-Basin
- Twin Platte

**Fully Appropriated IMPs- Three Districts**

- Lower Republican ( 3<sup>rd</sup> Version)
- Middle Republican (3<sup>rd</sup> Version)
- Upper Republican (3<sup>rd</sup> Version)

**District partially Fully Appropriated IMP- Two Districts**

- Upper Big Blue
- Upper Niobrara White

**LB 483 – Limited Growth Restrictions- Eight Districts**

- Upper Elkhorn
- Lower Elkhorn
- Upper Loup
- Lower Loup
- Papio Missouri River
- Lower Platte South
- Lower Platte North
- Upper Big Blue

**LB 483 – Limited Growth Restrictions- – Niobrara**

- Lower Niobrara
- Middle Niobrara
- Upper Niobrara-White

### **Voluntary IMP being developed- Four Districts**

- Lower Niobrara
- Lower Platte North
- Lower Platte South
- Papio-Missouri River

### **Voluntary IMP discussed or considered- Five Districts**

- Upper Elkhorn
- Lower Elkhorn
- Upper Loup
- Lower Loup
- Lewis & Clark

### **Projects**

The Nebraska DEQ and DHHS estimate the cost of needed drinking water projects at \$427 million while wastewater treatment systems need an estimated \$717 million in funding. The cost to Nebraska to bring major rivers into compliance with the Clean Water Act would cost an estimated \$101,000/mile of impaired stream, or around \$5 million to renovate a 200 acre lake according to the NDEQ.

Combined sewer overflow construction has cost the city of Omaha \$1.7 billion plus \$1.3 billion in bond service through 2053, and the city of Plattsmouth \$5.7 million plus \$300,000 in bond service through 2032.

The NRD's have \$470.7 million in existing projects and \$196.4 million in new projects over the next five years. These include water banking, water purchase, leases, water conservation programs, cost-share programs, some development fund projects, water studies and other related programs.

In 2010 the Nebraska Environmental Trust came up short \$4 million for worthy applicants.

Several irrigation districts in Nebraska are investing in projects to improve the efficiencies of their operations. Districts in the Republican River basin are trying to convert open ditches to buried pipe, automate, install variable frequency drives on pumps and improve system management in order to conserve water. Irrigation districts in the North Platte basin are installing new gates, pipes, and automated systems.

### **Litigation and Compact Compliance**

Litigation costs include litigation between states (i.e., Kansas v. Nebraska, Nebraska v. Wyoming), litigation between various governmental entities in Nebraska (i.e., NRDs v. DNR, irrigation districts v. NRD), and litigation filed by individuals against either a local government or state agency.

The Attorney General's office indicated the current budget for Republican River litigation is \$2 million a year. The agency also dedicates 2 FTEs within its office for water litigation. The legislature's fiscal office estimates costs for the Nebraska v. Wyoming litigation at \$24.7 million and for the Kansas v. Nebraska litigation at \$48 million.

Irrigation district's litigation costs involved both litigation and legal assistance concerning integrated management, but no number was given. Natural Resources Districts have also experienced costs in defending their actions or instigating litigation against the Department of Natural Resources over regulatory programs.

Currently Nebraska is involved in six compacts or agreements for water use: Blue River Compact (KS), Upper Niobrara River Compact (WY, US), Republican River Compact & Settlement (KS, CO, US), Platte River Recovery Implementation Program (CO, WY, US), North Platte Decree (WY), South Platte River Compact (CO). Each of these compacts or agreements are unique in their terms, in the costs for compliance, and in whom the costs fall upon. For example, the Blue River Compact requires monitoring and occasional administration on the part of DNR to remain in compliance and can affect local irrigators when forced to shut down to meet compact requirements. On the other hand, the cost of compliance with the Platte River program, or the Republican Compact, fall on DNR, NRDs, irrigation districts, other local governments, water users in the basins, cooperating organizations and other interested parties. Accounting for these costs can be difficult because they are overlapping with other costs, like integrated management, and are broadly experienced. Another consideration are the costs Nebraska could incur if Nebraska were found not to be in compliance with a compact or agreement.

Costs of compliance in the Republican and Platte Basins affects agricultural producers through the need to reduce the consumption of irrigation water. Two methods have been pursued to reduce the consumption of irrigation water: a per acre allocation and the temporary or permanent retirement of irrigated acres. The cost to producers reflects how their net income would be affected with the reduction in irrigation. The annual cost to producers of retiring irrigated acres can be reflective in the difference in cash rental rates between dryland and irrigated land in these basins. Thus far, retirement of irrigated acres has been done through programs on a voluntary basis with compensation, except in areas where well moratoriums are imposed. Producers not able to drill wells incur the full opportunity cost of not being able to irrigate without compensation.

Regulatory allocations also affect the net income of producers. In 2006, a UNL-IANR Agricultural Economics study estimated the cost of achieving necessary consumptive use reductions through allocations to be \$9 per acre in the Platte Basin, and \$14 per acre in the Republican Basin. It should be noted these estimates were made assuming commodity prices considerably lower than today's prices. For example, the assumed corn price in the study was \$2.40/bushel while today's prices range around \$6.00/bushel. Thus, the income lost to producers today from regulatory allocations is considerably higher than estimated in the study. These costs are not compensated.

For producers who use surface water for irrigation, the costs would be similar if water available is not sufficient for full irrigation.

To the extent non-compliance in the Republican and Platte basins result in further reductions in the consumptive use of water for irrigation, producers would experience corresponding losses in net income.

Nebraska entities reliant on the Platte River program for Endangered Species Act (ESA) compliance, like irrigation districts, public power districts, and municipalities would still need to comply with the ESA without program's existence. ESA compliance would come through individual, project-by-project consultations with federal agencies and the Fish and Wildlife Service. Such consultations would be protracted and expensive, likely involve litigation, and would likely mean additional water, land and dollars would be needed to comply, meaning more costs for these Nebraska entities.